Peng-Ting (Dean) Kuo

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Education

National Taiwan University *Taipei, Taiwan*
Master of Arts in Political Science *Sep 2021 - Nov 2024*
- Overall GPA: 3.94/4.0
- Master's Thesis: The Impact of Electoral Reform on Legislators' Campaign Strategies: An Application of Large Language Models
- Related courses: Probability and Statistics, Linear Algebra and Its Applications, Applied Deep Learning, Programming for Business Computing, Natural Language Processing and Its Applications, Data Science and Social Inquiry
- Teaching Assistant Courses: Seminar on Games Theory, Social Network and Group Behavior, Computational Social Science

National Taiwan University *Taipei, Taiwan*
Bachelor of Arts in Political Science and Minor in Economics *Sep 2017 - June 2021*
- Last two years GPA: 3.98/4.0
- Overall GPA: 3.58/4.0
- Related courses: Calculus, Microeconomics, Macroeconomics, Statistics and Econometrics with Recitation

Publication

"**Electoral Reform and Campaign Tactics: A Machine Learning Analysis of Taiwanese Legislative Candidates' Manifestos**." *Presented at The 16th International Conference on Parliamentary Studies. Taipei, Taiwan, Jun 15-16, 2024. (with Ronan Tse-Min Fu, Nick Lin)*

"**From Human-Label to Auto-Label: An Automatic Classification Model for Legislators' Oral Question**." *Presented at The 16th International Conference on Parliamentary Studies. Taipei, Taiwan, Jun 15-16, 2024. (with Yu-Hung Sun, Chun-Ming Tsui, Hong-Wung Wang)*

"**Decoding Campaigning Strategies: A Machine Learning Approach to Understanding the Impact of Election Systems on Legislative Candidates**." *Presented at The 81st Annual Midwest Political Science Association Conference (MPSA). Chicago, United States, Apr 4-7, 2024. (with Ronan Tse-Min Fu)*

"**Democracy or Prosperity? A Cross-National Analysis of East Asian Countries**." *Presented at 2023 Asian Barometer Survey Conference. Taipei, Taiwan, Jun 13, 2023. (with Ronan Tse-min Fu, I-Lien Lee, Chia-Hsiang Han, Yu-Ning Chiu, Ronald Pernia)*

Honor

Travel Grant for International Conference Participation, *Ministry of Science and Technology* *2024*
Encouraged students to attend international conferences, present research results and strengthen research capabilities

Diplomatic Scholarship, *Ministry of Foreign Affairs, Republic of China (Taiwan)* *2022*
Awarded students with outstanding academic performance and interests in diplomacy

Yu Ren-Huan Scholarship, *Department of Political Science, National Taiwan University* *2019*
Awarded to students with outstanding academic performance in the study of political science

Dean's List Award, *National Taiwan University* *2019*
Awarded students with outstanding academic performance

Professional Experience

Institute of Political Science, Academia Sinica *Taipei, Taiwan*
Research Assistant *Mar 2022 - Nov 2024*
- Developed and curated a comprehensive news database from China's People's Daily, processing approximately 2 million entries and training classification models for content analysis
- Engineered datasets and conducted statistical analysis on cross-national data from twelve countries using Python and R, delivering actionable insights within one month that contributed to a publication at the ABS conference 2023
- Synthesized comprehensive literature reviews and provided critical research support, including data analysis, significantly enhancing the development of the professor's IR theory book, which was commended by the professor
- Developed and maintained an events database on UK-Germany relations, consolidating a comprehensive resource and literature reviews for the book project and regularly reporting progress to the team

Institute of Sociology, Academia Sinica *Taipei, Taiwan*
Research Assistant *Apr 2024 - Nov 2024*
- Analyzing World Trade Organization Dispute Settlement Body (WTO DSB) cases using social networking techniques, uncovering key patterns and relationships between countries
- Scraping and processing text data from the WTO website using Python, enabling a comprehensive analysis of dispute resolution patterns and improving data accessibility for further research

First Bank   *Taipei, Taiwan*
Intern   *Jul 2020 - Aug 2020*
- Conducted qualitative data collection and developed strategic recommendations to enhance digital bank user experience, earning recognition from managers
- Initiated and organized an experience-sharing session on project management for 50+ interns, fostering strong relationships between the interns and the company

National Audit Office, R.O.C.(Taiwan)   *Taipei, Taiwan*
Intern   *Oct 2019 - Nov 2019*
- Translated international manifestos from INTOSAI and EUROSAI with precision and attention to detail
- Facilitated effective communication of critical policy information to stakeholders

Teaching Experience

National Taiwan University   *Taipei, Taiwan*

Computational Social Science (PS5697)   *Feb 2024 - May 2024*
- Served as a course teaching assistant, providing weekly office hours for student inquiries
- Instructed students in fundamental Netlogo programming syntax and library utilization

Basic Mathematics for Social Science (PS5710)   *Sep 2023 - Dec 2023*
- Served as a course teaching assistant, providing weekly office hours for student inquiries
- Facilitated in-depth learning of fundamental calculus and linear algebra principles for graduate-level courses

Social Network and Group Behavior (PS5705)   *Feb 2023 - Jun 2023*
- Served as a course teaching assistant, providing weekly office hours for student inquiries
- Instructed students in fundamental R programming syntax and package utilization

Seminar on Game Theory (PS5019)   *Sep 2022 - Dec 2022*
- Served as a course teaching assistant, providing weekly office hours for student inquiries

Project

Legislator Manifesto Classification (Master's Thesis)   *Feb 2023 - Jun 2024*
Classified Taiwan Manifestos to clarify the relationship between the electoral system and candidates' strategies

- Employed advanced topic modeling techniques, including BERTopic and LDA models, to analyze Taiwan political manifestos, uncovering connections between electoral systems and candidate strategies
- Leveraged LLMs (OpenAI, Claude) for sophisticated prompt engineering, enhancing analysis depth and accuracy
- Developed project code on *GitHub*, promoting transparency and reproducibility in political science research
- **Technical skills:** Python (BERTopic, Claude,OpenAI, Pandas, Scikit-learn), Git

Legislator interpellation Classification   *Nov 2023 - Dec 2023*
Constructed a pre-trained model for legislators' questioning classification tasks.

- Developed a multi-label classification model for Taiwan legislator interpellations using Longformer architecture, achieving a 0.84 Hamming score. Deployed a live demo on *HuggingFace Space* and open-sourced code on *GitHub*.
- **Technical skills:** Python (PyTorch, HuggingFace), LaTeX

Automatic Sports Center Court Reservation   *Feb 2023 - Feb 2023*
Automated Court Reservation System for Sports Teams

- Engineered and deployed a Python script utilizing Selenium to streamline court reservations for the badminton team, boosting rental efficiency by 60% over manual methods
- **Technical skills:** Python (selenium)

Predict House Price by House Description in Taipei   *Nov 2022 - Nov 2022*
Machine Learning-Based House Price Prediction Model

- Engineered a text classification algorithm using TF-IDF to analyze house descriptions, achieving over 71% accuracy in predicting house prices
- **Technical Skills:** Python (Scikit-learn, Numpy, Pandas), LaTeX

Skills

Language	Mandarin, English(TOEFL 101/120 (R:24 L:27 S:23 W:27); GRE 330/340 (V:160 Q:170), Japanese
Programming	Python, R, Netlogo
Software Skills	LaTeX, Git